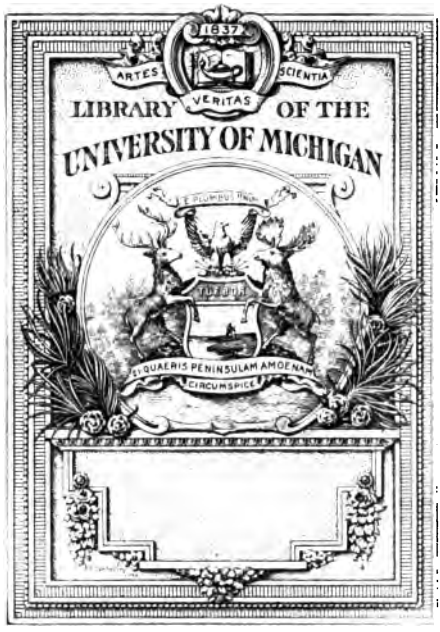
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INDEX

TO THE

LITERATURE OF EXPLOSIVES

PART I.

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Professor of Chemistry, U. S. Naval Academy.

BALTIMORE:
ISAAC FRIEDENWALD.
1886

Press of Isaac Friedenwald,
Baltimore, Md.

This index is intended to embrace not only such articles as treat of the composition and of the chemical and physical properties of explosive substances, but also of their manufacture and use in the arts. This part contains the titles of papers appearing in such periodicals as the indexer has been able to review from the date of first issue. 442 volumes have been thus reviewed for this part. Many other titles of papers have been collected, but the indexer has not yet had access to complete sets of the periodicals from which they have been gathered. A large number of titles of separate publications, treatises, text-books and the like have also been collected. It is hoped that it will be possible to eventually publish these, together with a "subject" and "author's" index to the entire list.

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TO THE

LITERATURE OF EXPLOSIVES

PART II.

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LITERATURE OF EXPLOSIVES

PART II.

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June 30. Majendie, V. D. Explosion of fireworks at Messrs. Dyer & Robson's factory in Greenwich Marshes, June 11. LXXX.

July 19. Ford, A. Explosion at the fireworks factory of Mr. John Hodsman at Love Lane, West, Dublin, May 24. LXXIX.

Aug. 15. Majendie, V. D. Fire and explosion at Messrs. Roberts, Dale & Co.'s Chemical Works, Cornbrook, near Manchester, June 22. LXXXI.

Sept. 13. Cundill, J. P. Explosion in an incorporating mill at Lowood gunpowder works, Sept. 6. LXXXII.

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Aug. 22. Majendie, V. D. Explosion during the emptying of some 3-pr. shells for quick-firing ammunition at Messrs. G. Kynoch & Co.'s factory at Witton, near Birmingham, Aug. 10. LXXXVI.

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Liebig, and Gay-Lussac. Composition of fulminic acid. **1** [1], 376.

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——— Spontaneous explosions of gun-cotton. (Experiments made to determine how explosions may be caused.) **1**, 376. (Miscellany.) *Engineer.*

Lovering, Joseph. Sympathetic vibrations. (Note in connection with Abel's theory.) **1**, 765. (Miscellany.)

1873. ——— Smokeless gunpowder. (Preparation and properties of Schultze's wood powder.) **2**, 61–65. *Belgravia.*

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1875. Tyndall, John. The atmosphere in relation to fog signaling. (Effect of firing cannon.) **6**, 541–562, 685–705.

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——— Cotton gunpowder. (Experiments with.) **7**, 247. (Miscellany.)

——— Dynamite employed in France for breaking up old cannon. **7**, 526. (Notes.)

1876. ——— Gun-cotton exploded by palladium black saturated with hydrogen. **8**, 127. (Notes.)

Decharme. Sounds produced by blowing into a flame. (Due to explosions of the mixture of air and gas.) **9**, 125. (Miscellany.)

——— Experiments to show that air laden with coal dust is highly explosive. **9**, 256. (Notes.)

——— Testing of safety lamps in an explosive mixture of petroleum-spirit and air. **9**, 640.

1877. ——— The Hell-Gate explosion. **10**, 105–106. (Editor's Table.)

——— Successful use of dynamite in viniculture. **10**, 127. (Notes.) *Moniteur Industrielle Belge.*

——— Powder paper. (A substitute for gunpowder invented in England, being paper impregnated with oxidizing salts, etc.) **10**, 253. (Miscellany.)

——— Suicide by means of dynamite. **10**, 384. (Notes.)

Hamilton, A. McL. Use of nitroglycerine in epilepsy. **11**, 128. (Notes.)

1877. Beckerhinn. Methods of testing the comparative explosiveness of nitroglycerine in the liquid and frozen states. **11**, 640. (Notes.)

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——— Clearing land with dynamite. **13**, 120. (Miscellany.)

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1880. Wahl, W. H. Composition and uses of celluloid. **16**, 859. (Miscellany.)

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Walford, Cornelius. Some facts about explosions. (Statistics of deaths produced by explosions between 1852 and 1879, and of nature and causes of the explosions.) **19**, 281. (Miscellany.)

1881. ——— Safe manufacture of dynamite. (Award of prize by French Academy to Boutmy and Faucher for their process.) **19**, 286. (Notes.)

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Abel, F. A. Coal dust an important factor in colliery explosions. **19**, 864. (Notes.)

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Garrettson, Frederic. Vibrations of rocks in Patapsco Valley, Maryland. (Due to rhythmic vibrations of a waterfall. Cf. Abel's theory of sychronous vibrations.) **20**, 451–543.

Abbott, Benjamin Vaughan. Modern explosives. (Résumé of recent explosions with suggestions as to legislation.) **20**, 794–801.

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Bergerou, Jules. The formation of lunar craters. (Description of craters formed in molten alloys by blasts of warm air. Cf. holes produced in metals by gun-cotton, etc.) (Ill.) **22**, 495–497. *La Nature.*

——— Knighthood to be conferred on Prof. F. A. Abel for services in relation to the chemistry of explosives, etc. **23**, 287. (Notes.)

1884. Daubree, M. The causes of earthquakes. (He compares the force of the aqueous vapor in the interior of the earth with that of the gases from high explosives.) **24**, 515–520. *Revue Scientifique.*

1885. Lock, C. G. Warnford. Sulphur and its extraction. (Also sources.) (Ill.) **26**, 482–495. Abrgd. *Jour. Soc. Arts.*

——— Sketch of M. Pierre E. Berthelot. (Portrait.) **27**, 113–116.

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McElroy, John. The musket as a social force. **28**, 485–495.

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Pradanovic, M. Driving stakes by means of dynamite. **30**. 288. (Notes.)

Harries, H. Coal mine gas explosions and the weather. **30**. 718. (Notes.) *Iron.*

Griffin, L. R. F. A remarkable explosion. (Explosion of powder magazine near Chicago.) **30**, 810–814.

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Fay, A. O. Safety in the manufacture of high explosives. (Criticism of Griffin's paper.) **31**, 265.

Darwin. G. H. Earthquakes. (Use of gun-cotton to produce artificial earthquakes.) **31**. 359–372. *Fortnightly Review.*

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Hirn, M. Cause of thunder and the explosive noise of meteorites. **31**, 861. (Notes.)

1888. v. Förster, M. Compressed gun-cotton for military use. D. Van Nostrand, N. Y. 164 pp. **32**, 133. (L. N.)

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Munroe. C. E. Experiments with gun-cotton. **32**. 287. (Notes.)

Mees. Velocity of tornadoes. (Sufficient to cause straws to penetrate pine boards, etc.) **32**. 288. (Notes.)

Miles. Manly. The microbes of nitrification. **32**. 421. (L. N.)

Rogers, C. C. Progress at Panama. (Account of great blasts.) **32**. 447–445.

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Harris. Mine explosions and the weather. **32**, 864. (Notes.)

1888. Johnson, Albert Burges. Sound signals at sea. (De la Torres' fog-gun.) **33**, 86–99.

Bonnetond. Use of dynamite in driving water from wet ground, etc. **33**, 286. (Notes.)

Galloway, W. Watering the floors as a preventive of coal mine explosions. **33**, 717. (Notes.)

1889. Le Conte. The problem of a flying machine. (Use of explosives as propellants.) **34**, 69–76.

Burton, W. K. Volcanic explosion in Japan. **34**, 716. (Notes.)

——— Dangers of the laboratory. (Investigation of nitrogen chloride.) **35**, 426. (Notes.)

——— Sketch of Lavoisier. (Ill.) (Inspector-General of powder and saltpeter in France.) **35**, 548–553.

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——— A country of salt. (Manufacture of saltpeter in Central Asia.) **35**, 863. (Notes.)

1890. Stevens, W. Le Conte. Sensitive flames and sound-shadows. (Ill.) (Le Conte's submarine experiments with dynamite.) **36**, 36–88.

——— Howat's improved safety lamp. **36**, 143. (N.)

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Miller, Wesley. Explosive compound. (Sodium and potassium nitrates, starch, potassium bichromate, sulphur and charcoal.) **I**, 124. *U. S. Pat.*, No. 212726, Feb. 25, 1879.

Schering, E. Celloidine. (Collodion evaporated to consistency of glue and cast in moulds.) **I**, 175. *German Pat.*, No. 2660, April 7, 1878.

Schering, E. Preparation of pure nitrocellulose for collodion. (By washing ordinary nitrocellulose with sulphurous acid.) **I**, 175. *English Pat.*, No. 4771, Dec. 27, 1879.

Mann, F. Improvement in the manufacture of nitroglycerine. (Cools mixture after conversion until nitroglycerine congeals and then separates from acids by centrifugal.) **I**, 176. *German Pat.*, No. 4220, May 28, 1878.

Dieckerhoff, A. Explosive compounds. (Mixtures in different proportions of alkaline picrates, nitrates and sulphur, with or without charcoal.) **I**, 179. *U. S. Pat.*, No. 215199, May 6, 1879.

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Siegler, Berenth. Manufacture of picric acid. I, 302. *English Pat.*, No. 1444, Apr. 11, 1878.

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Johnstone, W. Fire extinguisher. (Equal quantities of potassium chlorate, rosin, potassium nitrate and peroxide of manganese, moistened with liquid glass and compressed into blocks.) I, 304. *English Pat.*, No. 1277, April 1, 1878.

Huntley, Th. S., and Kessel, R. W. Plastic waterproof explosive. (75 parts nitroglycerine and 25 parts plaster of Paris.) I, 304. *English Pat.*, No. 1919, May 14, 1878.

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McCaine, Wm. Processes for treating pyroxyline. (Mixture of gun-cotton and spirits of turpentine.) I, 306. *U. S. Pat.*, 217232, July 8, 1879.

Saybolt, G. M. Electric oil testers. (Flashing effected by electric spark.) I, 308. *U. S. Pat.*, 218066, July 29, 1879.

Monnier, A. Explosive compounds. (Potassium chlorate, sugar, ground charcoal and coal tar.) I, 309. *U. S. Pat.*, No. 218762, Aug. 19, 1879.

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Pattison, John. Explosive compounds. (An explosive, having for its base potassium chlorate, mixed with coarsely ground mustard or flaxseed to prevent premature explosions.) **1**, 457. *U. S. Pat.*, No. 220304, Oct 7, 1879.

Hardy, Orlando B. Blasting powder. (Sodium nitrate, sugar, salt, charcoal, sulphur and paraffine.) **1**, 458. *U. S. Pat.*, No. 220534, Oct. 14, 1879.

Stebbins, James H., Jr. Some new azo-colors. (The azobenzene-trinitro-oxybenzene is very explosive at 70° C.) **1**, 465–468.

Schmitt, R., and Goldberg. Action of chloride of lime on ethyl alcohol. (A yellow oil is formed, which explodes under the influence of light or heat, and which is supposed to be ethyl hypochlorite.) **1**, 496. *Jour. Prkt. Chem.*, **10**, 393.

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Williams, Ed. J. Explosive compounds. (Potassium chlorate, prussiate and bichromate, nutgalls, cannel coal, starch, and crude coal oil.) **1**, 590. *U. S. Pat.*, No. 222169, December 2, 1879.

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Millot, A., and Maguenne. On the fermentations that take place in the process of extraction of the saccharine liquid from beet roots by diffusion. (An explosive gaseous mixture is sometimes formed, which is probably due to hydrogen evolved.) **2**, 91. *Bull. Soc. Chim.*, **32**, 611.

Child, John M. Composition for aiding the ignition of coal. (Potassium and ammonium nitrates, ammonium sulphate and soda ash.) **2**, 101. *U. S. Pat.*, No. 224649, February 17, 1880.

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Wegener, Hans. Apparatus for the production of high temperatures. (The object is heated, under pressure, in a cylindrical vessel, by means of an oxyhydrogen blowpipe, the pressure being produced by repeated explosions of small quantities of gun-cotton.) **2**, 104. *German Pat.*, Aug. 19, 1879.

Kuhlmann, F., Jr. Explosion of a platinum retort used for concentrating sulphuric acid. **2**, 130. *Bull. Soc. Chim.*, **33**, 50.

McRoberts, G. Explosive compound. (Cotton, infusorial

earth, sawdust, charcoal or other non-explosive absorbent added to Nobel's mixture of nitroglycerine and gun-cotton or methyl nitrate and gun-cotton.) **2**, 142. *English Pat.*, No 1090, Mar. 19, 1879.

1880. Nobel, A. Explosive compounds. (Explosive bodies of rapid and tardy explosibility are mingled in such proportions as to produce a mixture having the desired degree of explosibility.) **2**, 143. *English Pat.*, No. 226, January 20, 1879.

Eder, J. M. Chemical composition of pyroxyline and the formula of cellulose. **2**, 173. *Berl. Ber.* **13**, 169.

Mann, F. Process of manufacturing nitroglycerine. **2**, 190. *U. S. Pat.*, No. 226867, April 27, 1880. (Vide **1**, 176.)

Warren, Robert W. Explosive compound. (Explosive gelatine mixed with pulverized nitro-cellulose to a dry powder and then mixed with gunpowder.) **2**, 229. *U. S. Pat.*, No. 227601, May 11, 1880.

Parkes, Henry. Improvements in the methods of working nitro-cellulose. (Various solvents used with camphor for making celluloid.) **2**, 231. *English Pat.*, No. 1869, November 10, 1879.

Stebbins, J. H., Jr. New coloring matters produced by the action of diazo-compounds on phenols. (Same explosive body as **1**, 465.) **2**, 236–246.

Robinson, J. A., and Dimock, R. H. Deflagrating compound. (Amorphous phosphorus, plumbic plumbate and potassium chlorate.) **2**, 297. *U. S. Pat.*, 228935, June 15, 1880.

Nobel. A. Explosive compound. (Setter of dynamite enclosed in compressed gunpowder and with a suitable priming composition, preferably a picrate.) **2**, 299. *English Pat.*, No. 2399, June 17, 1879.

Trotman, H. Gun-cotton. (Reduces the explosibility of gun-cotton by admixture of "silicate cotton.") **2**, 300. *Eng. Pat.*, No. 2536, June 24, 1879.

Felhoen, Chas. Explosive compound. (Common gunpowder cake mixed with 10 per cent. of nitronaphthalene.) **2**, 303. *English Pat.*, No. 2266, June 9, 1879.

Schippang and Wehenkel. Method of preparing iodized and

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Nobel, Alfred. Apparatus for concentrating sulphuric acid and similar liquids. **2**, 355. *German Pat.*, No. 10149, January 15, 1880.

Thomas, C., Fuller, W. J., and King, S. A. Improvements in the process of recovering glycerine from soap waters. **2**, 357. *German Pat.*, No. 9979, September 30, 1879.

Beilstein, F., and Kurbatow, A. Dinitronaphthalene. (Products from treating the α and β varieties with nitric acid of 1.15.) **2**, 369. *Berl. Ber.*, **13**, 353.

Natanson, S. Fittica's fourth nitrophenole. (Does not exist.) **2**, 371. *Berl. Ber.*, **13**, 415.

Tschiener, Max. Explosive compound. (Mixture of picric acid and potassium chlorate.) **2**, 375. *U. S. Pat.*, No. 232381, Sept. 21, 1880.

Schmerber, Jules and Charles. Process of treating pyroxyline in the manufacture of plastic compounds. **2**, 403. *U. S. Patent*, No. 233558, Oct. 19, 1880.

Engels, Jacob. Explosive made from pyroxyline, nitroglycerine, pyropaper, xyloidine, nitromannite and silicate of soda, which explodes at a low temperature with or without a percussion cap. **2**, 405. *German Pat.*, No. 10232, Nov. 28, 1879.

Leeds, A. R. Action of hyponitric anhydride on organic bodies. (With phenol it gives picric acid.) **2**, 416–430.

Demarçay, E. Preparation of acetonitrile. (Rapid and simple method.) **2**, 432. *Bull. Soc. Chim.*, **33**, 456.

Berthelot. On the heat of formation of oxides of nitrogen. **2**, 433. *Bull. Soc. Chim.*, **33**, 509.

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Bertrand, A. Reduction of nitrate of ethyl by alcohol. **2**, 434. *Bull. Soc. Chim.*, **33**, 566.

1880. Sarrau and Vieille. On the heat of formation of gun-cotton. 2, 435. *Bull. Soc. Chim.*, 33, 581.

Morse, Charles A. Explosive compound. (Solutions of nitroglycerine and resin in some volatile solvent are mixed and the solvent allowed to volatilize.) 2, 438. *U. S. Pat.*, No. 234489, Nov. 16, 1889.

Heick, William. Explosive compound. (Mixture of honey and glycerine, treated with nitric and sulphuric acids, chlorate and nitrate of potash, prepared sawdust and prepared chalk.) 2, 459. *U. S. Pat.*, No. 235871, Dec. 25, 1880.

1881. Morse, Charles A. Manufacture of explosive compounds. (Nitroglycerine, a resinous substance and niter intimately mixed.) 3, 64. *U. S. Pat.*, No. 236714, Jan. 18, 1881.

Keil, Frederick C. Explosive compound. (Nitroglucose, nitrate and chlorate of potash, and prepared vegetable matter.) 3, 67. *U. S. Pat.*, No. 238916, Mar. 15, 1887.

Beals, Leonard S. Treating pyroxyline. (To produce plastic substances.) 3, 68. *U. S. Pat.*, Nos. 239423 to 239425; Mar. 29, 1881.

Guettler, H. Use of dextrine in the preparation of cartridges from compressed blasting powder. 3, 72. *German Pat.*, No. 10978; Dec. 3, 1879.

Nobel, A. Application of compressed gunpowder in combination with fulminating cartridges composed of dynamite, or of a mixture of gunpowder and dynamite, nitrogelatine, nitrocellulose, bipicrate of baryta, lead or potassa, for blasting purposes. 3, 74. *German Pat.*, No. 11030; Jan. 6, 1880.

Helloff, M. Blasting compounds. (The nitro-compounds formed by treating crude tar oil with concentrated nitric acid mixed with chlorates, nitrates or nitric acid.) 3, 75. *German Pat.*, No. 12122; June 3, 1880.

Lanfrey, Jos. A., and Renard, J. L. Improvements in the manufacture of nitrocellulose paper. (Makes a nitrocellulose from straw which will absorb 75 per cent. of nitroglycerine.) 3, 76. *German Pat.*, No. 12115; Jan. 21, 1880.

Sattison, John. Method of controlling the explosion of blasting compounds containing potassium chlorate.

(*Vide* 1, 457.) 3, 77. *English Pat.*, No. 810, Feb. 24, 1880.

1881. Volney, C. W. On the constitution of the explosive derivatives of glycerine. (Title only.) 3, 109.

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Dean, Gilbert S. Method of preparing nitroglycerine compounds. (100 pts. nitroglycerine, 10 pts. pulverulent nitrocellulose, 2 to 3 pts. water.) 3, 159. *U. S. Pat.*, No. 241941, May 24, 1881.

Lewin, John M. Explosive compound. (Nitroglycerine, cellulose and niter.) 3, 161. *U. S. Pat.*, No. 242783, June 14, 1881.

Devine, Silas R. Explosive compound. (Potassium chlorate and nitrobenzene.) 3, 161. *U. S. Pat.*, No. 243432, June 28, 1881.

Hoggson, Samuel J., and Pettis, George C. Manufacture of plastic compounds from pyroxylene. (The pyroxylene to be used is treated with sal-ammonia to render it less explosive.) 3, 164. *U. S. Pat.*, No. 245952, Aug. 23, 1881.

Lockwood, Charles S. Treatment of pyroxylene. (It is mixed with a solution of camphor in chloral.) 3, 166. *U. S. Pat.*, No. 246891, September 13, 1881.

Drummond, Isaac W. Compound of celluloid and luminous material. (Celluloid and calcium sulphide.) 3, 168. *U. S. Pat.*, No. 248413, Oct. 18, 1881.

Volney, Carl W. Explosive compound. (Mixture of monochlordinitrine and potassium nitrate.) 3, 169. *U. S. Pat.*, No. 249490, Nov. 15, 1881.

Varney, Thomas. Explosive compound. (Title only.) 3, 169. *U. S. Pat.*, No. 249701, Nov. 15, 1881.

von Planitz, Gustave. Explosive compound. (The product of the treatment of rosin by nitric acid.) 3, 171. *U. S. Pat.*, No. 251145, December 20, 1881.

Punshon, R. Explosive compound. (Nitric acid is mixed with pulverized asbestos and picric acid and the doughy mass is put into paper capsules and coated with a cement

of powdered glass and sodium silicate.) 3, 178. *English Pat.*, No. 2242, June 1, 1880.

1882. Krause, O. H. Obituary of Joseph Goldmark. (He reduced the manufacture of fulminating powder to a comparatively safe process, and established, 1858, a factory for cartridges and percussion caps, and perfected machinery for their manufacture.) **4**, 7–9.

Bjoerkmann, C. G. Explosive compound. (Glycerine mixed with one-third its weight of a carbohydrate, such as glucose, is nitrated and the liquid is mixed with combustible bodies containing oxygen in such proportion that a powder results.) **4**, 41. *English Pat.*, 2483, June 19, 1880.

Mackie, S. J. Explosive compound. (Dry sodium nitrate is ground in a mill with loose gun-cotton and the mass is pressed in moulds, a split tube being inserted to receive the fulminate.) **4**, 41. *English Pat.*, No. 4230, October 18, 1880.

Mills, B. J. Explosive compounds. (Nitroglycerine, moderately nitrated cellulose and alcohol. Also another composed of moderately nitrated cellulose, sodium nitrate, wood cellulose and sulphur.) **4**, 48. *English Pats.*, Nos. 800 and 801, February 24, 1881.

Proudhomme, H. Explosive compound. (Title only.) **4**, 48. *English Pat.*, No. 4200, April 14, 1881.

Tschirner, Max. Improvements in the manufacture of explosive compounds. (Picric acid, tar and potassium chlorate. *Vide* **2**, 375.) **4**, 80. *German Pat.*, 15508, February 6, 1880.

Lewin, I. M. Use of cotton and dextrine for the preparation of a gelatinous nitroglycerine. (Finely divided pure cotton with 5 pts. dextrine are heated under pressure in closed vessel and the jelly formed is dissolved in nitroglycerine to the extent of 7 per cent., forming a mass from which the nitroglycerine will not drain. This is mixed with niter and sawdust.) **4**, 80. *German Pat.*, No. 15073, January 18, 1881.

Elliott, Arthur H. On nitrosaccharose. (Manufacture and properties.) **4**, 147–153.

1882. Hempel, W. Determination of nitrous oxide. (Proportions with hydrogen to form explosive mixture.) **4**, 160. *Berl. Ber.*, **15**, 903.

Elliott, Arthur H. On nitrosaccharose; a correction (in formula). **4**, 186–187.

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Schwarz, H. Lecture experiments with zinc dust and sulphur. (Forms explosive mixture.) **5**, 53. *Berl. Ber.*, **15**, 2505.

Stoddard, J. T. Demonstration of the flashing point of petroleum. **5**, 53. *Berl. Ber.*, **15**, 2555.

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Baird, J. W. A dictionary of the action of heat upon certain metallic salts, including an index to the principal literature upon the subject. **5**, 135–203.

Masson, O. Action of nitrous anhydride on glycerine. (Glyceryl trinitrite formed.) **5**, 233. *J. Chem. Soc.*, **43**, 348.

Veley, V. H. Rate of decomposition of ammonium nitrate. **5**, 235. *J. Chem. Soc.*, **43**, 370.

Kjeldahl, J. Determination of nitrogen in organic bodies. (By oxidation with permanganate in acid solution.) **5**, 243. *Zeit. Anal. Chem.*, **22**, 366.

1884. Munroe, Charles E. Flashing test for gunpowder. **6**, 7–12.

1884. Munroe, Charles E. Spontaneous decomposition of explosive gelatine. **6**, 13–14.

Leeds, A. R. Atomation of oxygen at elevated temperatures and the production of hydrogen peroxide and ammonium nitrite, and the non-isolation of ozone, in the burning of purified hydrogen and hydrocarbons, in purified air. **6**, 17–23.

Guyard, A. Researches on nitrogen iodide. **6**, 34. *Bull. Soc. Chim.*, **41**, 12.

Divers, E., and Kawakita, H. Constitution of the fulminates. (Experimental.) **6**, 45. *J. Chem. Soc.*, 13.

Divers, E. Theory of the constitution of the fulminates. **6**, 45. *J. Chem. Soc.*, 19.

Armstrong, H. E. Note on the formation and on the constitution of the fulminates. (Critical.) **6**, 46. *J. Chem. Soc.*, 25.

Divers, E., and Kawakita, M. On Liebig's production of fulminating silver without the use of nitric acid. **6**, 46. *J. Chem. Soc.*, 27.

Reichler, S. A. History of the ammonia silver compounds. (Title only.) **6**, 73. *Berl. Ber.*, 41; 1884.

Walsh, M. A. Process of concentrating sulphuric acid. (Concentrates in usual way to 93 per cent. monohydrated acid and then completes concentration in iron or steel vessels. **6**, 52. *U. S. Pat.*, No. 291821, January, 8, 1884.

Divers, E., and Kawakita, M. On the decomposition of silver fulminate by HCl. (Experimental.) **6**, 90. *Jour. Chem. Soc.*, 75.

Levallois, A. Action of solutions of cellulose in Schweitzer's reagent on polarized light. **6**, 93. *Comptes rend.*, **98**, 44.

Michaud, E. F. and E. N. Process of extracting glycerine from fatty matters. (Saponifies with water and "zinc-powder" in a closed vessel under steam pressure.) **6**, 109. *U. S. Pat.*, No. 293344, Feb. 12, 1884.

Villiers, A. Tetranitrated ethylene bromide. **6**, 131. *Bull. Soc. Chim.*, **41**, 281.

Villiers, A. Nitrated derivatives of ethelyene hydride.

(Obtains $C_4K_2(NO_4)_4$, which detonates violently at 200°.) **6**, 131. *Bull. Soc. Chim.*, **41**, 282.

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Mowbray, G. M. Plastic compound from pyroxyline and mica. (Mica, soluble pyroxyline, coloring matters and inert substances to serve as a body thereto.) **6**, 145. *U. S. Pat.*, No. 294661, March 4, 1884.

Green, A. G., and Rideal, S. New volumetric method for the estimation of nitrous acid. (Depends on formation of diazobenzene by action of nitrous acid on aniline.) **6**, 170. *Chem. News*, **49**, 173.

Cross, C. F., and Bevan, E. J. Oxidation of cellulose with special reference to the chemistry of bleaching and dyeing. **6**, 197. *J. Soc. Chem. Ind.*, **3**, 206.

Hyatt, J. W. Art of manufacturing celluloid and other compounds of pyroxylene. (Consists in displacing aqueous particles by means of pressure applied to a suitable liquid (alcohol, etc.), whereby the aqueous particles are caused to leave the pulp, their places being occupied by the unobjectionable liquid particles, which can afterward be utilized as a solvent.) **6**, 204. *U. S. Pat.*, No. 296967, April 15, 1884.

Hyatt, J. W., Wood, H. W., Stevens, J. H. Process and apparatus for effecting the desiccation of pyroxylene pulp. (Formed into a cake which is subjected to great pressure in contact with a surface of bibulous material.) **6**, 204. *U. S. Pat.*, No. 296968, April 15, 1884. Improvement on No. 133229, Nov. 19, 1872.

Hyatt, J. W., Stevens, J. H., Everding, J. Manufacture of pyroxyline material. (Material first formed in cakes or plates, liquid solvents are then flowed over the cakes until a sufficient amount has been absorbed while the cakes are held apart, and finally the material is allowed to remain in an air-tight case a proper length of time.) **6**, 204. *U. S. Pat.*, No. 296969, April 15, 1884.

Hyatt, J. W., Stevens, J. H, Wood, W. H. Manufacture of celluloid and other compounds of pyroxyline. (Pyroxylene is ground to pulp, pressed in cakes and dried; then

the cakes are softened with required amount of liquid solvent by being formed into a pile with the solvent between the cakes, when they are mixed or masticated in heated rolls or other suitable apparatus.) 6, 204. *U. S. Pat.*, No. 296970, April 15, 1884.

1884. Wood, W. H., and Stevens, J. H. Application of celluloid for enameling textile fabrics, etc. (Sheets of veneer of pyroxylene material made to adhere by subjecting to heat and pressure while in contact with a dried surface of a cement containing oxidizable or drying oil.) 6, 204. *U. S. Pat.*, No. 297098, April 15, 1884.

Hyatt, J. W. and I. S. Treating and moulding pyroxylene. (Use of finely comminuted camphor mixed with pyroxyline pulp and rendered a solvent thereof by heat.) 6, 204. *U. S. Pat.*, Reissue No. 10469, April 15, 1884. Original No. 105338, July 12, 1870; Reissue No. 5928, June 23, 1874.

Edson, J. B. Finishing and glossing the surface of fabrics having a coating of some pyroxylene compound.) They are passed through a fluid solvent of the zylonite or similar material, which by evaporation leaves the desired gloss.) 6, 207. *U. S. Pat.*, 297770, April 20, 1884. Improvements on Nos. 289240 and 289242, November 27, 1883, and No. 290553, December 18, 1883.

Hyatt, J. W. Process of desiccating pyroxylene in comminuted form. (Grinds the nitrocellulose in water and then removes the aqueous particles by agitating the nitrocellulose in contact with an absorbent.) 6, 207. *U. S. Pat.*, No. 297935, Apr. 29, 1884.

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Hart, Peter. Notes on the concentration of sulphuric acid. (Historical review of methods, with recent process of concentrating in cast iron.) 6, 244. *J. Soc. Chem. Ind.*, 3, 355.

Hyatt, J. W., Pool, F. V., Everding, J., Stevens, J. H., and Wood, W. H. Apparatus for the manufacture of nitrocellulose. (Settling, storage, fresh acid and weighing or

measuring tanks, temperature regulating and converting pots, centrifugal machine, etc.) 6, 249. *U. S. Pat.*, No. 299388, May 27, 1884.

1884. Quinan, W. R. Explosive compound. (A low-explosive powder, composed of a small proportion of nitroglycerine, carbonaceous material, either pulverized or in the form of non-porous small masses or grains, and an explosive salt in the form of non-porous untriturated small masses, grains or crystals.) 6, 251. *U. S. Pat.*, No. 300281, June 10, 1884.

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Wilson, W. V. Manufacture of artificial leather or cloth. (Fabric coated with mononitrocellulose dissolved in amyl acetate, mixed with oil and a coloring matter.) **8**, 242. *U. S. Pat.*, No. 352726, Nov. 16, 1886.

Prinzhorn, H. Composition of matter for fuel. (Charcoal, sodium and potassium nitrates or other soluble hyperoxide, glue, dextrin, gum arabic or other adhesive material, clay and iron-filings.) **8**, 242. *U. S. Pat.*, No. 352889, November 16, 1886.

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Bernstein, R. Granular nitrocellulose. (Is prepared from the pulverized nut, fruits or shells of nuts of the *Phytelephas macrocarpa* and kindred plants.) **9**, 125. *U. S. Pat.*, No. 363197, May 17, 1887.

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Volney, C. W. Explosive compound. (Solution of nitrostarch in nitroglycerine.) **9**, 158. *U. S. Pat.*, No. 366281, July 12, 1887.

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Schoeneweg, H. Explosive. (Nitrated hydrocarbons, nitrated

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Antheunis, G. Blasting powder. (Mahogany sawdust, sodium nitrate, charcoal, sublimed sulphur, potassium ferrocyanide and ammonium picrate.) **10**, 29. *U. S. Pat.*, No. 374921, Dec. 20, 1887.

Roth, C. Explosive. (Combination of an aromatic chlor-nitro-carburet with an oxidant such as ammonium nitrate.) **10**, 30. *U. S. Pat.*, No. 375651, December 27, 1887.

Meldola R., and Moritz, E. R. Kjeldahl's method for nitrogen. (Removal of nitrogen compounds from sulphuric acid by KNO_2.) **10**, 45. *J. Soc. Chem. Ind.*, **7**, 63.

Emmens, S. H. Explosive derived from phenol. (New crystallized product obtained by action of hot fuming nitric acid upon picric acid in excess.) **10**, 48. *U. S. Pat.*, No. 376145, January 10, 1888.

Bichel, C. E. Manufacture of explosives. (Sulphur and a hydrocarbon are distilled together and the product is mixed

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Judson, Egbert. Dynamite. (Consists of a base of nitrate, or its equivalent, the grains of which are protected by a paste, consisting of a cereal or leguminous powder combined with nitroglycerine.) **12**, 23. *U. S. Pat.*, 420626, Feb. 4, 1890.

Broncs, B. Explosive compound. (Consists of a double salt of sodium picrate with other picrates, potassium nitrate, saccharine matter, a gummy or resinous substance and soot.) **12**, 51. *U. S. Pat.*, 421662, Feb. 18, 1890.

Orth, H. Explosive compound. (Consists of the double picrate of sodium and barium or lead combined with nitrated naphthalin.) **12**, 51. *U. S. Pat.*, 421753, Feb. 18, 1890.

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Emmens, S. H. Manufacture of explosives. (Consists in fusing a suitable hydrocarbon derivative such as trinitrophenol with a nitrate.) **12**, 75. *U. S. Pat.*, 422514, Mar. 4, 1890.

Emmens, S. H. Manufacture of explosives. **12**, 75. *U. S. Pat.*, 422515, March 4, 1890.

Emmens, S. H. Explosive. (Paper converted into a nitrocompound and impregnated with ammonia and picric acid.) **12**, 76. *U. S. Pat.*, 423230, Mar. 11, 1890.

Abel, F. A. Gelatinous explosive. (Nitroglycerine and nitrocellulose to which tannin is added to impart a propulsive character to the explosive.) **12**, 125. *U. S. Pat.*, 425648, Apr. 15, 1890.

Germain, P. Dynamite. (Uses spongy vegetable matter for a dope.) **12**, 178. *U. S. Pat.*, 427679, May 13, 1890.

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Maxim, H. S. Manufacture of explosives. (Fibrous guncotton, confined in an exhausted receiver, is dissolved by acetone vapor.) **12**, 240. *U. S. Pat.*, 430212, June 17, 1890.

Maxim, H. S. Recovering solvents from explosives. **12**, 240. *U. S. Pat.*, 430214, June 17, 1890.

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Maxim, H. S. Manufacture of explosives. (Method of treating gun-cotton with acetone in vacuuo, pressing and granulating.) **12**, 365. *U. S. Pat.*, 436898, Sept. 23, 1890.

Mindeleff, D. Explosive compound. (Nitroglycerin, alcohol and a soluble explosive.) **12**, 416. *U. S. Pat.*, 437499, Sept. 30, 1890.

Lundholm, C. O., and Sayers, J. Manufacture of explosives. (Suspending cellulose nitrates and nitroglycerin in water, or a liquid incapable of dissolving them, and agitating them together in the liquid.) **12**, 418. *U. S. Pat.*, 438816, Oct. 21, 1890.

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Bäärnhielm, L. Quick match. **12**, 505. *U. S. Pat.*, 442164, Dec. 2, 1890.

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its densities, at successive turns of dilution (with tables). **4**, 291–299.

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M. F. Reduction of the oxide of silver by ammonia. (No fulminate formed under these circumstances.) **5**, 368–369.

1819. Ure, Andrew. On nitric acid. (Reply to Richard Phillips.) **6**, 242–255.

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Leroi. Gunpowder inflamed without a spark. (When mixed with glass, feldspar and the like it may be inflamed by a blow of copper on copper.) **7**, 183.

——— Rupert's Drops. (A bottle is broken by filling with water, placing a drop in it and breaking. Illustrates the efficiency of water-tamped shells.) **7**, 371.

1820. Brande, W. T. On a substance produced during the distillation of coal tar. (Naphthaline?) **8**, 287–290.

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1821. ——— Fulminating mercury. (Between 100 and 150 grains lying in a wooden tray 1½ inches thick and covered with a bell glass exploded, perforating the wood but without breaking the glass.) **10**, 182.

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lished at Bazas, France, 1630. (Contains an account of the discovery of the air-gun or Arquebuss.) **11**, 271.

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1822. Silliman, B. Explosion of chlorine and hydrogen. (By exposure to sunlight.) **12**, 413. *Abstr.*

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